Botulism

What is botulism?
Botulism is a muscle-paralyzing disease caused by a toxin made by a bacterium known as *Clostridium botulinum.* There are three main kinds of naturally occurring botulism:

1. Foodborne botulism occurs when a person ingests toxin that leads to illness within a few hours to days;
2. Infant (also called intestinal) botulism occurs when botulism spores settle in the intestine and then produce toxin. It usually affects infants, but also can affect adults who have certain unusual intestinal conditions;
3. Wound botulism occurs when a wound has been contaminated by ground-in soil or gravel and the wound is sealed off from outside air.

A fourth, man-made type of botulism, which could occur through an act of bioterrorism, is inhalation botulism. It results from breathing in aerosolized toxin.

Who gets botulism?
Foodborne botulism is due to eating food containing the toxin. It often involves improperly processed home canned foods. Infant botulism has been associated with eating honey that contains the bacterial spores. Light and dark corn syrups have also been reported to contain the spores, although cases of infant botulism have not been linked to corn syrup. Wound botulism occurs when toxin is produced in a wound infected with *Clostridium botulinum* organisms. Inhalation botulism would most likely occur as a result of an act of bioterrorism.

How is botulism spread?
You cannot get botulism from another person. A person must eat contaminated food that has not been properly cooked or reheated. With infant botulism, an infant must eat food containing bacterial spores and then the bacteria produce the toxin in the gastrointestinal tract. Wound botulism is rare and happens when botulism spores are introduced into a wound.

Could botulism toxin be used for bioterrorism?
Yes. Botulinum toxin is one of the agents that could be used for bioterrorism because it is easy to obtain, transport, and misuse, and people who get sick need a lot of medical care for a long time.

What are the symptoms of botulism?
Foodborne and infant botulism produce symptoms that affect the nervous system control over muscles. The symptoms of foodborne botulism include blurred or double vision, dry mouth, and muscle paralysis that may affect breathing. About 5-10% of persons with foodborne botulism die. Infant botulism has a wide range of symptoms including constipation, weakness, difficulty breathing, poor feeding and poor reflexes. About 1% of the cases of infant botulism die. Wound and inhalation botulism produce symptoms similar to foodborne botulism.

How soon after exposure do symptoms appear?
Symptoms of foodborne botulism usually appear 12 to 36 hours after eating the food that contains the toxin. It is possible for symptoms to take several days to develop. The incubation period for infant botulism is unknown. Symptoms for wound botulism appear after about 7 days. Studies in monkeys have shown that symptoms of inhalation botulism would probably occur 12 to 80 hours after exposure.

What is the treatment for botulism?
Hospital care is necessary. Persons with botulism may need help with breathing. Antitoxin is given in certain cases of foodborne botulism and would probably be used for inhalation botulism. Antitoxin is not used in cases of infant botulism.

How can botulism be prevented?
Honey and corn syrup should not be fed to infants under 12 months of age. All canned and preserved foods should be properly processed and prepared. Bulging containers should not be opened and goods with off-odors should not be eaten or even tasted. Commercial cans with bulging lids should be returned unopened to the place of purchase. Home canned vegetables should be boiled, with stirring, for at least 3 minutes before eating. Wound botulism can be prevented by promptly seeking medical care for infected wounds and by not using injectable street drugs.